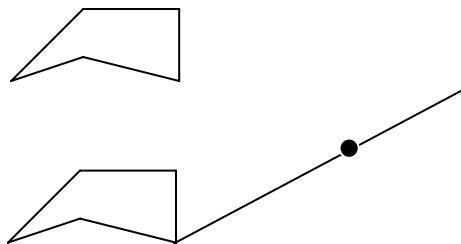


Translations

Example

1.
 - a. Draw a polygon on patty paper.
This polygon is called the pre-image.
 - b. Draw a line segment from one vertex toward the edge of the paper.
 - c. Mark a point on your line segment.
 - d. Trace the polygon and line on a second sheet of patty paper.
 - e. Place one copy under the other aligning the corresponding points. Now slide the top picture so that the point on the line on the bottom paper and the vertex of the polygon on the top paper coincide, keeping the lines on top of each other.
 - f. Trace both polygon figures on to the same sheet of patty paper.
 - g. Using a third sheet of patty paper, mark the length of the segment from the vertex of the original polygon to the point marked on the line.
 - h. Draw segments connecting corresponding vertices of the pre-image polygon and the image polygon. Compare the lengths of each segment with the marked length.
2.
 - a. How do the distances between the vertices of the pre-image and the vertices of the image compare?
 - b. Write a statement about the distance between any point and its image in a translation.
3. How do the lengths of the corresponding sides and the measures of corresponding angles of the pre-image and the image compare?
4. A translation is called a **rigid transformation** or an **isometry**. The word isometry can be broken into *iso* meaning the same, and *metry* meaning measure. Explain why a translation is an isometry.



- Answers:
2.
 - a. The distances between the vertices of the pre-image and the image are the same.
 - b. In a translation, the distance between every point in the pre-image and its corresponding point in the image are the same.
 3. The lengths of the corresponding sides and the measures of the corresponding angles of the pre-image and the image are congruent.
 4. A translation is an isometry because all of the side lengths and angle measures between the pre-image and its image are the same.